

CLAIMS

We claim:

1. An electronically-controlled locker system for use by a plurality of authorized users and managed by an administrator, said system comprising:

5 a first plurality of lockers wherein each locker comprises a respective electronically-activated lock;

 at least one input device for allowing the plurality of authorized users to communicate with said system;

10 at least one locker control unit, in communication with each electronically-activated lock and with said at least one input device, said at least one locker control unit controlling the activation of said electronically-activated locks;

 a computer, controlled by the administrator, for managing at least one database of authorized user and locker information;

15 a system control unit, in communication with said at least one locker control unit and with said computer, said system control unit providing said at least one locker control unit with said authorized user and locker information; and

 wherein said at least one locker control unit uses data from said at least one input device and said authorized user and locker information to provide access to corresponding lockers for the plurality of authorized users.

20 2. The system of Claim 1 wherein said computer allows the administrator to control access to, and assignment of, said first plurality of lockers.

3. The system of Claim 1 wherein said system control unit allows communication between at least two locker control units.

4. The system of Claim 1 wherein said at least one locker control unit is coupled to each one of said electronically-activated locks using two conductors to form a single circuit, said at least one locker control unit controlling access to said corresponding locker door and detecting the open or closed state of said corresponding locker door using said single circuit.

5. The system of Claim 4 wherein said single circuit comprises:

one of said two conductors being coupled between said at least one locker control unit and an actuator for driving said electronically-activated lock;

a switch, operated by the open or closed state of said corresponding locker door, having one pole coupled to said actuator and another pole coupled to said at least one locker control unit using said other one of said two conductors.

6. The system of Claim 5 wherein said at least one locker control unit transmits a first pulse to energize said actuator and transmits a second pulse to determine the open or closed state of said corresponding locker door.

7. The system of Claim 1 wherein said at least one input device is a card reader.

8. The system of Claim 1 wherein said at least one input device is a keypad.

9. The system of Claim 1 wherein said at least one input device is a proximity reader.

10. The system of Claim 1 wherein said at least one input device is a biometric.

11. The system of Claim 1 wherein said system control unit and said at least one locker control unit are coupled together using an RS-485 daisy chain.

12. The system of Claim 1 wherein said system control unit and said at least one locker control unit are coupled together using modulated power lines.

5 13. The system of Claim 1 wherein said system control unit and said at least one locker control unit are coupled together using wireless means.

10 14. The system of Claim 1 wherein a second locker control unit is in communication with each electronically-activated lock of a second plurality of lockers and is in communication with a second input device and with said system control unit, said second locker control unit communicating with said system control unit in order to control access to a locker in said first plurality of lockers when a user having a locker in said first plurality of lockers communicates with said second input device.

15 15. The system of Claim 2 wherein said computer allows the administrator to modify access privileges to a locker by time or date.

16. The system of Claim 1 wherein said plurality of lockers are lockers in a school.

17. The system of Claim 1 wherein said plurality of lockers are lockers in a fitness center.

18. The system of Claim 1 wherein said plurality of lockers are lockers in a workplace.

20 19. The system of Claim 1 wherein said computer allows the administrator to track locker usage.

20. The system of Claim 1 wherein said computer alerts the administrator to attempts at unauthorized access to any locker.

21. The system of Claim 1 wherein said computer allows the administrator to allow others to use said computer with limited access privileges.

22. The system of Claim 18 wherein said computer allows the administrator to track usage by others of said computer.

5 23. The system of Claim 1 wherein said computer allows the administrator to designate virtual groupings of lockers in said system.

24. A method for controlling access to a plurality of lockers for a plurality of authorized users by an administrator, said method comprising the steps of:

10 storing and maintaining information about the plurality of authorized users and said plurality of lockers, referred to as predetermined data, at a first location;

15 providing an electronic lock at each one of said plurality of lockers; assigning a respective locker control unit to a respective subset of said plurality of lockers, each of said locker control units communicating with every electronic lock in said subset and each of said locker control units being located in the vicinity of a respective subset;

20 coupling at least one input device to each of said locker control units for permitting the authorized users in that subset to request access to their respective lockers;

 loading each of said locker control units with said predetermined data from said first location; and

controlling access to each of said lockers in a subset by a respective locker control unit based on said predetermined data and said access request by the authorized users.

25. The method of Claim 24 wherein said step of loading each of said locker control units comprises providing a system control unit that is coupled to said first location and each one of said locker control units, said system control unit communicating with each one of said locker control units.

26. The method of Claim 25 further comprising the step of permitting communication between said locker control units via said system control unit.

27. The method of Claim 24 wherein said step of controlling access to said lockers further comprises determining the open or closed state of said lockers.

28. The method of Claim 27 wherein said steps of controlling access to said lockers and determining the open or closed state of said lockers uses a single circuit.

29. The method of Claim 24 wherein said step of storing and maintaining information further comprises permitting a system administrator to create user names, passwords and security levels.

30. The method of Claim 24 wherein said step of storing and maintaining information further comprises permitting a system administrator to control the time and date of locker access.

20 31. The method of Claim 24 wherein said step of storing and maintaining information further comprises permitting a system administrator to designate lockers into virtual groupings.

32. The method of Claim 24 wherein said step of storing and maintaining information further comprises tracking any changes in said information.

33. The method of Claim 24 wherein said step of coupling at least one input device to each of said locker control units comprises coupling a card reader to said at least one input device.

34. The method of Claim 24 wherein said step of coupling at least one input device to each of said locker control units comprises coupling a keypad to said at least one input device.

35. The method of Claim 24 wherein said step of coupling at least one input device to each of said locker control units comprises coupling a proximity reader to said at least one input device.

36. The method of Claim 24 wherein said step of coupling at least one input device to each of said locker control units comprises coupling a biometric to said at least one input device.

37. The method of Claim 25 wherein said step of providing a system control unit that is coupled to said first location and each one of said locker control units further comprises coupling said system control unit and said locker control units together using an RS-485 daisy chain.

38. The method of Claim 25 wherein said step of providing a system control unit that is coupled to said first location and each one of said locker control units further comprises coupling said system control unit and said locker control units together using modulated power lines.

39. The method of Claim 25 wherein said step of providing a system control unit that is coupled to said first location and each one of said locker control units further comprises coupling said system control unit and said locker control units together using wireless means.

5 40. The method of Claim 26 wherein the step of permitting communication between said locker control units via said system control unit further comprises allowing an authorized user in a first subset to gain access to his/her corresponding locker by communicating with an input device in a second subset.

10 41. The method of Claim 24 wherein said plurality of lockers are lockers in a school.

42. The method of Claim 24 wherein said plurality of lockers are lockers in a fitness center.

43. The method of Claim 24 wherein said plurality of lockers are lockers in a workplace.

150 44. The method of Claim 24 further comprising the step of permitting the administrator to track locker usage.

45. The method of Claim 24 further comprising the step of alerting the administrator of attempts at unauthorized access of any locker.

20 46. An electronically-controlled locker system for use by a plurality of authorized users and managed by an administrator, said system comprising:

 a first plurality of lockers wherein each locker comprises a respective electronically-activated lock;

at least one input device for allowing the plurality of authorized users to communicate with said system;

5 at least one locker control unit, in communication with each electronically-activated lock and with said at least one input device, said at least one locker control unit controlling the activation of said electronically-activated locks;

10 a computer, controlled by the administrator, for managing at least one database of authorized user and locker information, said computer being in communication with said at least one locker control unit for providing said at least one locker control unit with said authorized user and locker information; and

15 wherein said at least one locker control unit uses data from said at least one input device and said authorized user and locker information to provide access to corresponding lockers for the plurality of authorized users.

20 47. The system of Claim 46 wherein a second locker control unit is in communication with each electronically-activated lock of a second plurality of lockers and is in communication with a second input device and with said computer, said second locker control unit communicating with said computer in order to control access to a locker in said first plurality of lockers when a user having a locker in said first plurality of lockers communicates with said second input device.